Colloquium of the Physics Department of ENS

Mercredi 5 Juin 2024, 13 :30
DPT-PHYS-ENS, ConfIV (E244) - Dépt de Physique de l'ENS - 24 rue Lhomond 75005 PARIS
Domaines : physics

Titre : *Sagittarius A*, the supermassive black hole at the centre of the Milky Way : exploration and tests of general relativity*

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Résumé : *The presence of a supermassive compact object was envisaged fairly quickly after the detection of the radio source Sagittarius A* at the centre of the Milky Way in 1974. Confirmation of this hypothesis took several decades, thanks in particular to the development of high angular resolution techniques at optical wavelengths. The precise measurement of the orbit of the star S2, notably with the VLTI's GRAVITY interferometer, made it possible to carry out tests of general relativity, the results of which proved compatible with the hypothesis of a supermassive black hole. The measurement of heated plasma orbits close to Sgr A*, also by GRAVITY, made it possible to establish a maximum size for the central object that is also compatible with the black hole hypothesis, in agreement with the image made later by the Event Horizon Telescope at 1.3 mm wavelength. I will come back to these results during the seminar and describe the measurements currently underway and those to come in order to continue the tests of general relativity in the strong field regime and the test of the supermassive black hole hypothesis.*